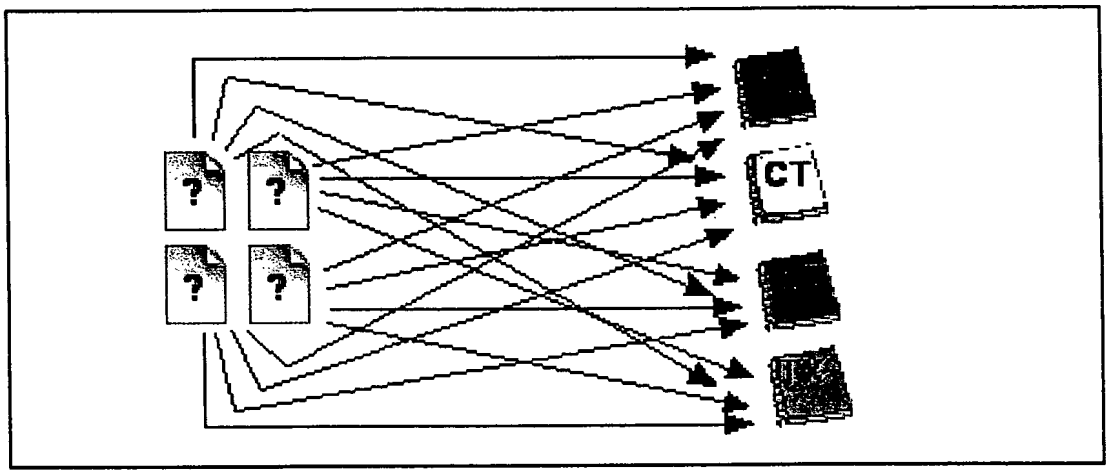
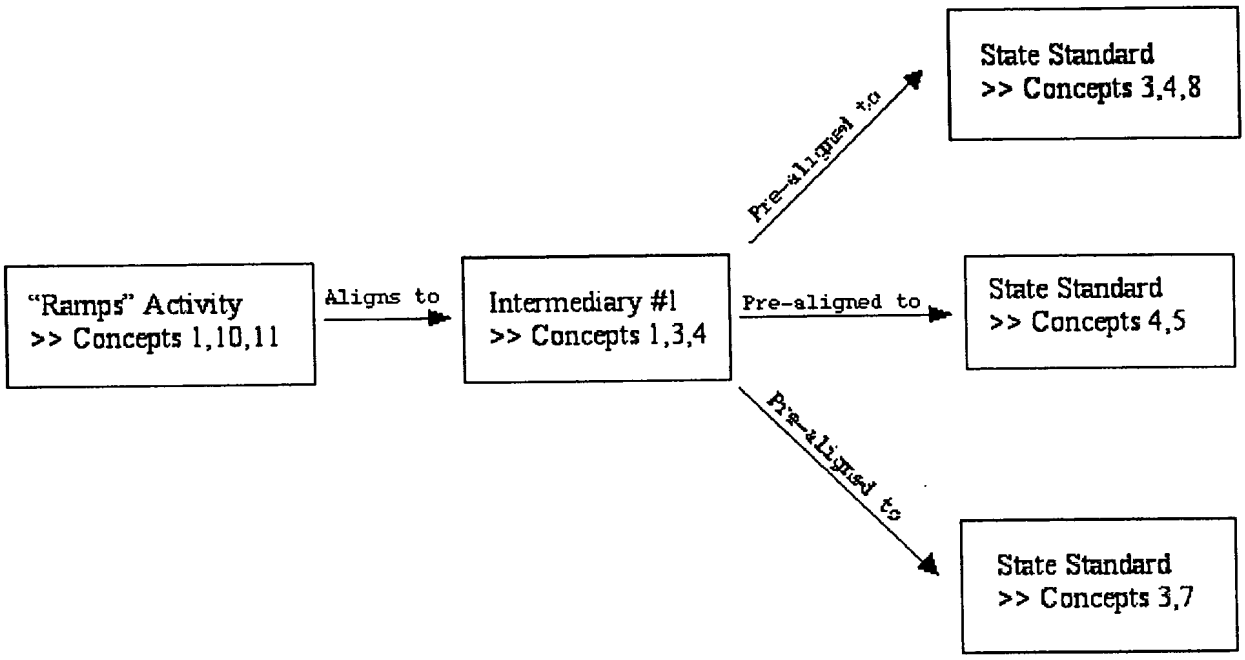
Fig. 1



Prior Art

Fig. 2



Prior Art

Fig. 3

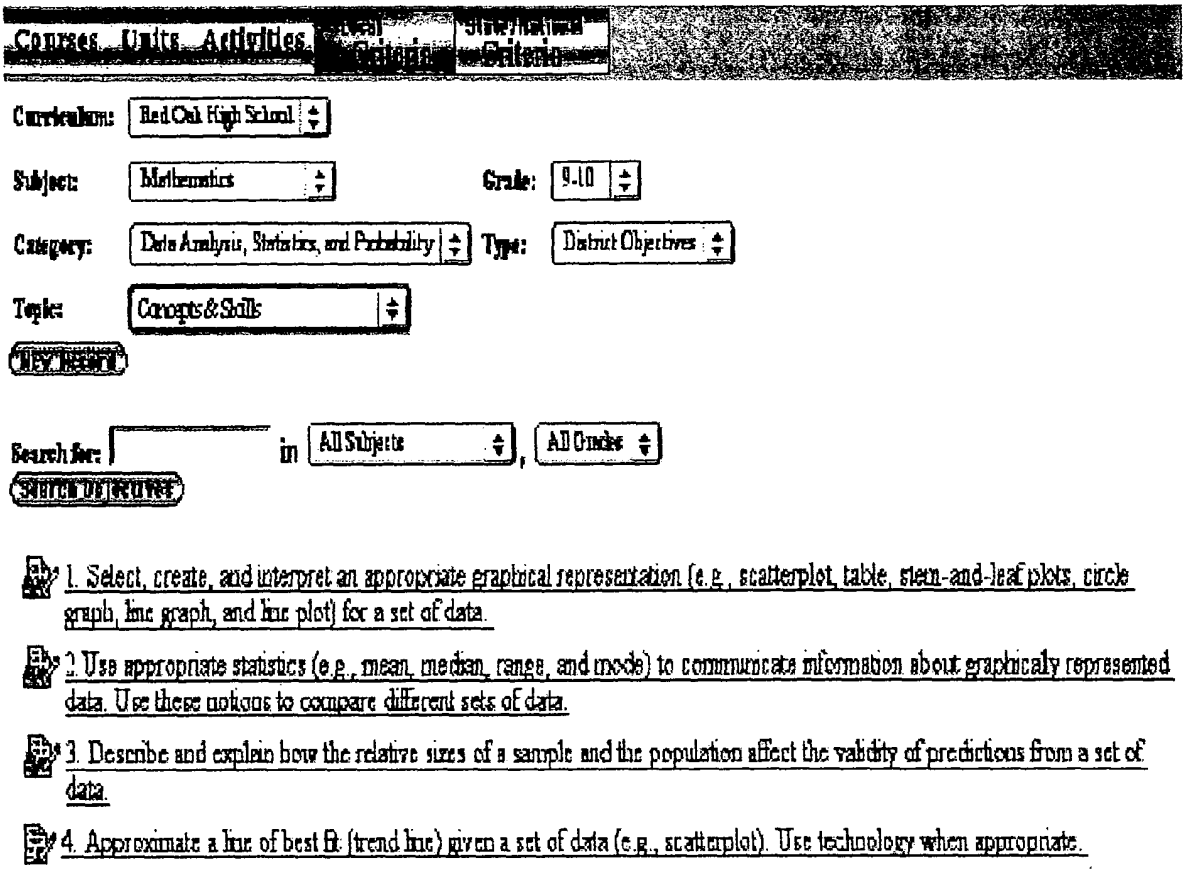

Courses
Units
Activities
Curriculum:
Red Oak High School
Subject:
Mathematics
Grade:
9-10
Category:
Data Analysis, Statistics, and Probability
Type:
District Objectives
Topic:
Concepts & Skills
Search for:
in
All Subjects
All Grades
1. Select, create, and interpret an appropriate graphical representation (e.g., scatterplot, table, stem-and-leaf plots, circle graph, line graph, and line plot) for a set of data.
2. Use appropriate statistics (e.g., mean, median, range, and mode) to communicate information about graphically represented data. Use these notions to compare different sets of data.
3. Describe and explain how the relative sizes of a sample and the population affect the validity of predictions from a set of data.
4. Approximate a line of best fit (trend line) given a set of data (e.g., scatterplot). Use technology when appropriate.

Fig. 4

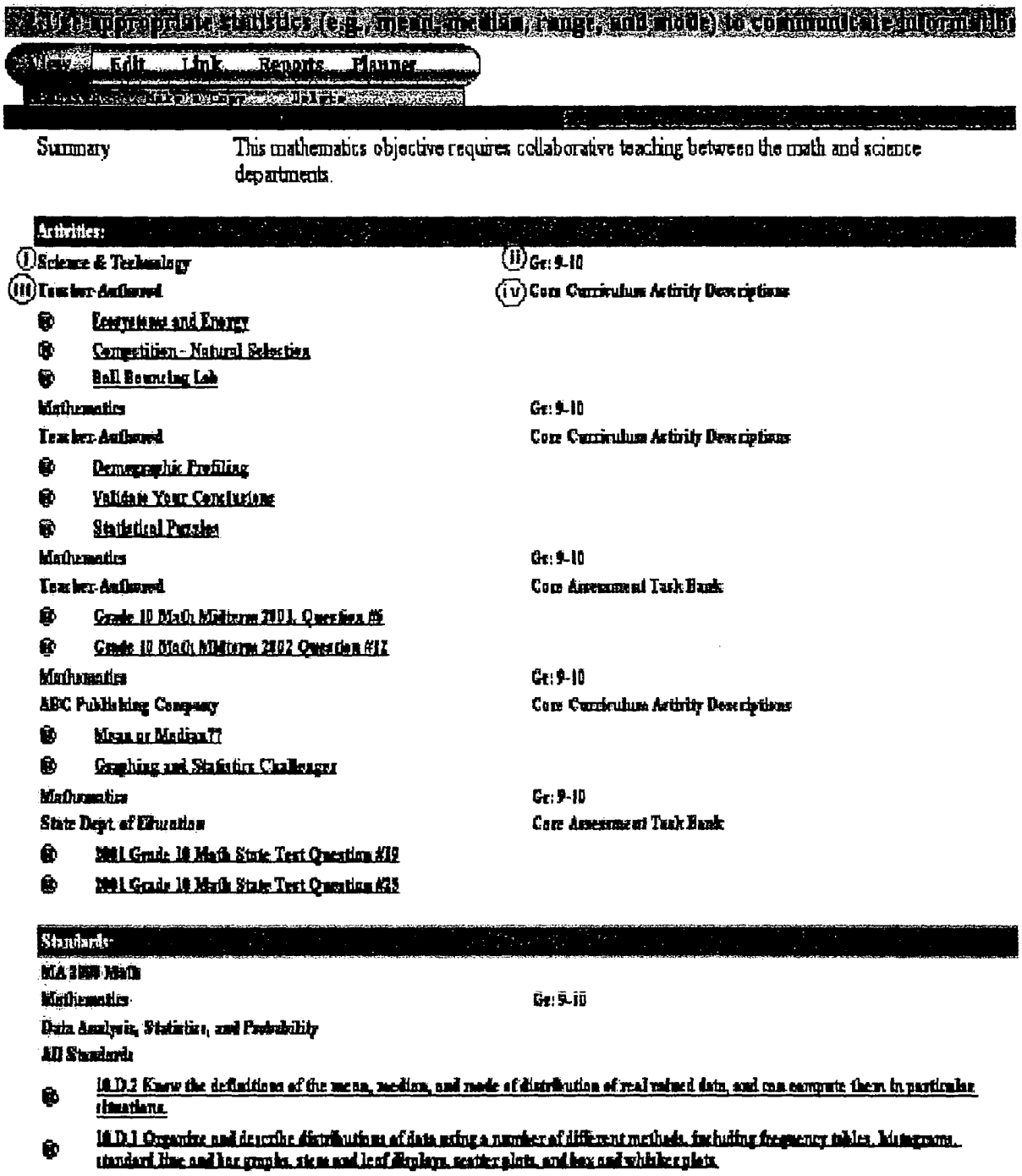

Edit
Link
Reports
Planner
Summary
This mathematics objective requires collaborative teaching between the math and science departments.
Activities:
Science & Technology
Gr: 9-10
Teacher-Authored
Core Curriculum Activity Descriptions
Ecosystems and Energy
Competition - Natural Selection
Ball Bouncing Lab
Mathematics
Gr: 9-10
Teacher-Authored
Core Curriculum Activity Descriptions
Demographic Profiling
Validate Your Conclusions
Statistical Puzzles
Mathematics
Gr: 9-10
Teacher-Authored
Core Assessment Task Bank
Grade 10 Math Midterm 2001, Question #6
Grade 10 Math Midterm 2002 Question #12
Mathematics
Gr: 9-10
ABC Publishing Company
Core Curriculum Activity Descriptions
Mean or Median??
Graphing and Statistics Challenges
Mathematics
Gr: 9-10
State Dept. of Education
Core Assessment Task Bank
2001 Grade 10 Math State Test Question #12
2001 Grade 10 Math State Test Question #25
Standards:
MA 2000 Math
Mathematics
Gr: 9-10
Data Analysis, Statistics, and Probability
All Standards
10.D.2 Know the definitions of the mean, median, and mode of distribution of real valued data, and can compute them in particular situations.
10.D.1 Organize and describe distributions of data using a number of different methods, including frequency tables, histograms, standard line and bar graphs, stem and leaf displays, scatter plots, and box and whisker plots.

Fig. 5

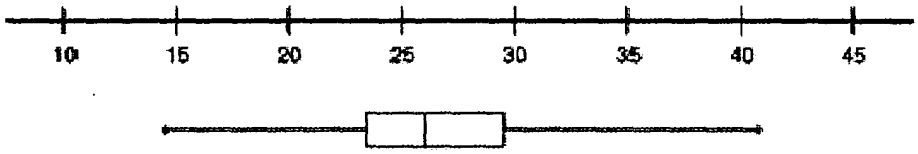
Graphing and Statistics Challenger

Edit Link Reports Planner

Broad Understandings	In order for students to master standards and apply graphing skills well, students need to be asked to apply these skills in many different contexts. Thus we strongly encourage that you use ABC
Learning Styles	This activity predominantly uses oral and visual learning styles.
Extensions	If student easily completes this activity, assign our "Advanced Graphing and Statistics Challenger" activity.
Launch Program	Click here to begin activity.

Sample Question

The box and whisker graph shown below represents the results of a survey of the estimated gas mileage of 100 car models.



Which statistics — mean, median, mode, range — can be determined from this graph?

A. mean only

B. median only

C. range and mean

✔ D. range and median

Next scheduled date:

Courses/Units containing this activity/resource:

Red Oak High School

Mathematics — Gr: 9-10

Grade 10 Mathematics 201

Probability and Statistics

Objectives for this activity/resource:

Red Oak High School

Mathematics — Gr: 9-10

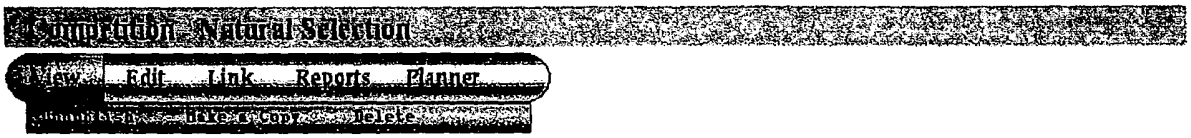
Data Analysis, Statistics, and Probability — District Objectives

Concepts & Skills

1. Select, create, and interpret an appropriate graphical representation (e.g., scatterplot, table, stem-and-leaf plot, circle graph, line graph, and box plot) for a set of data.

2. Use appropriate statistics (e.g., mean, median, range, and mode) to communicate information about graphically represented data. Use these notions to compare different sets of data.

Fig. 6



Summary	Students conduct a month-long research project whereby they analyze data on a mouse population over 15 years. They submit a written report in which they propose and defend at least one theory pertaining to the mouse population data.
Materials	graph paper, ruler, and student handout material.
Duration	1 period per week for four weeks.
References	Biology -Lab Projects. Investigation 30-1, pg. 117, "Lab Worksheets" manual.

Next scheduled date:

Courses/Units containing this activity/resource:

Red Oak High School
Science & Technology — **Gr: 9-10**
CPI Biology Course Guide
Evolution CPI

Red Oak High School
Science & Technology — **Gr: 9-10**
Honors Biology Course Guide
Evolution (Honors)

Objectives for this activity/resource:

Red Oak High School
Mathematics — **Gr: 9-10**
Data Analysis, Statistics, and Probability — **District Objectives**
Concepts & Skills

2. Use appropriate statistics (e.g., mean, median, range, and mode) to communicate information about graphically represented data. Use these notions to compare different sets of data.

Red Oak High School
English Language Arts — **Gr: 9-10**
Composition Strand — **District Objectives**
Writing

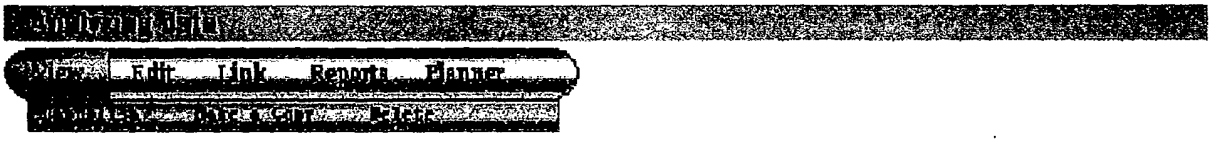
3. For informational/expository writing: Write well-organized research papers that prove a statement (e.g., theory, hypothesis) using logical organization, effective supporting evidence, and variety in sentence structure.

Red Oak High School
Science & Technology — **Gr: 9-10**
Life Science (Biology) — **District Objectives**
6. Ecology

4. Identify the factors in an ecosystem that influence fluctuations in population size.

5. Analyze changes in population size resulting from changes in climate, predator-prey interactions, food availability, or human activity.

Fig. 7



Summary	Students are given a table of scientific data and asked to graph, using graph paper and/or computer spread sheet programs. Students use relevant math skills to create multiple graphs that effectively present and analyze the data given them. Using their graphs, students write their predictions and conclusions.
Materials	Data tables
Duration	1-3 periods
Broad Understandings	Students understand how to *apply* appropriate statistics skills to analysis of scientific data.
Additional Resources	'Math/Science Tasks' pp. 13-20

Next scheduled date:

Objectives for this activity/resource:

Red Oak High School

Mathematics **Gr: 9-10**

Data Analysis, Statistics, and Probability **District Objectives**

Concepts & Skills

- **1. Select, create, and interpret an appropriate graphical representation (e.g., scatterplot, table, stem-and-leaf plots, circle graph, line graph, and line plot) for a set of data.**
- **2. Use appropriate statistics (e.g., mean, median, range, and mode) to communicate information about graphically represented data. Use these notions to compare different sets of data.**

Fig. 8

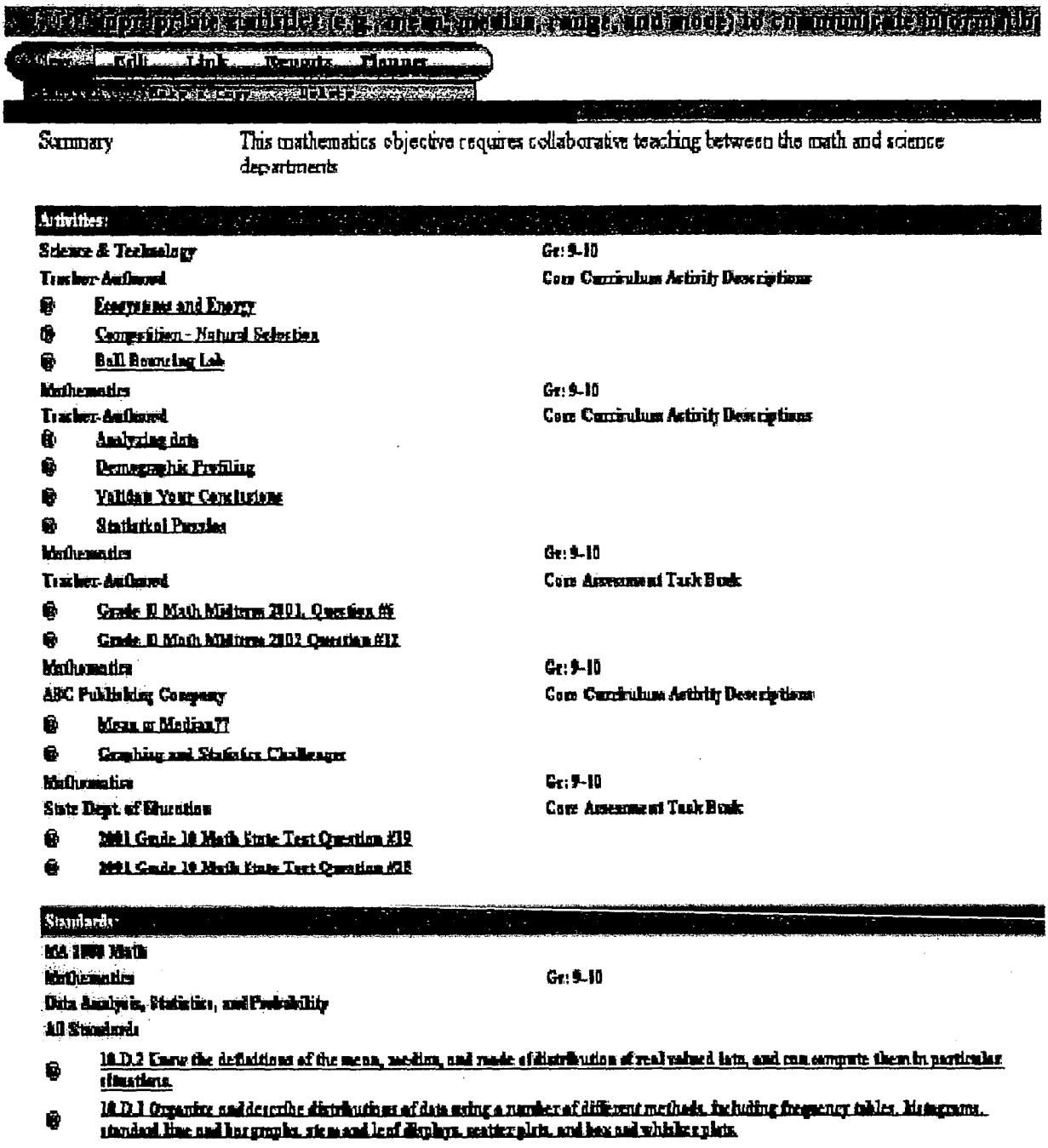
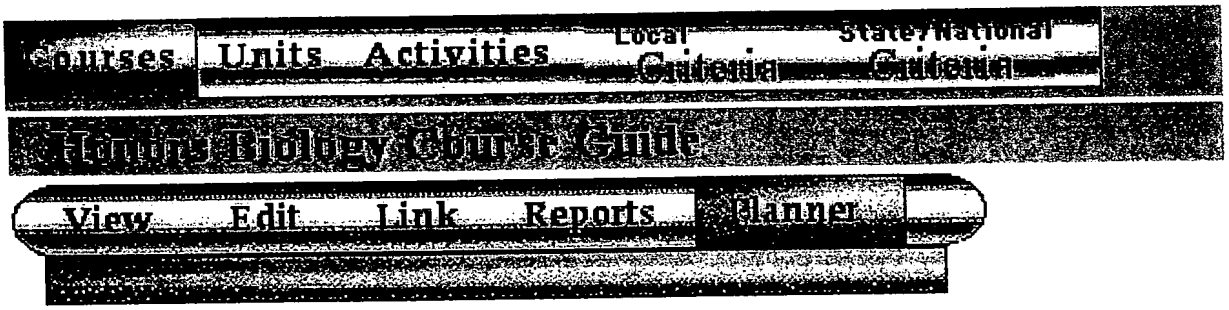

Summary
This mathematics objective requires collaborative teaching between the math and science departments
Activities:
Science & Technology
Gr: 9-10
Teacher-Authored
Core Curriculum Activity Descriptions
Ecosystems and Energy
Competition - Natural Selection
Ball Bouncing Lab
Mathematics
Gr: 9-10
Teacher-Authored
Core Curriculum Activity Descriptions
Analyzing data
Demographic Profiling
Validate Your Conclusions
Statistical Puzzles
Mathematics
Gr: 9-10
Teacher-Authored
Core Assessment Task Book
Grade 8 Math Midterm 2001, Question #6
Grade 8 Math Midterm 2002 Question #12
Mathematics
Gr: 9-10
ABC Publishing Company
Core Curriculum Activity Descriptions
Mean or Median??
Graphing and Statistics Challenger
Mathematics
Gr: 9-10
State Dept. of Education
Core Assessment Task Book
2001 Grade 10 Math State Test Question #19
2001 Grade 10 Math State Test Question #28
Standards:
MA 1998 Math
Mathematics
Gr: 9-10
Data Analysis, Statistics, and Probability
All Standards
10.D.2 Know the definitions of the mean, median, and mode of distribution of real-valued data, and can compute them in particular situations.
10.D.1 Organize and describe distributions of data using a number of different methods, including frequency tables, histograms, standard line and bar graphs, stem-and-leaf displays, scatterplots, and box-and-whisker plots.

Fig. 9

Dyson Cryer			
Improve Students' Understanding of Genetics in the 9th and 10th grades	1). By February, 90% of students in Grade 10 Honors Biology will obtain an average score of 8 or better on assessed classroom activities for the Heredity unit. Target: Last year, 80% of students obtained an average score of 8 or better.	B Build a Baby Summary: Students, working in pairs, "build a baby" from the combination of genes for specific traits. One gene (represented by one side of a coin) is contributed by each "parent". The concept of dominance/recessiveness as well as codominance is introduced. The concept that each parent contributes a minimum of one gene to his/her offspring is reinforced. References: "So You're Going to have A Baby" (see Bernon or West for copies of this investigation) Materials: pennies, packet of instru...	B 3.5 Differentiate between dominant, recessive, codominant, polygenic, and sex-linked traits.
			D 3.6 State Mendel's laws of segregation and independent assortment.
			B 3.7 (2 Yr. Science Sequence) Use a Punnett Square to determine the genotype and phenotype of monohybrid crosses.*

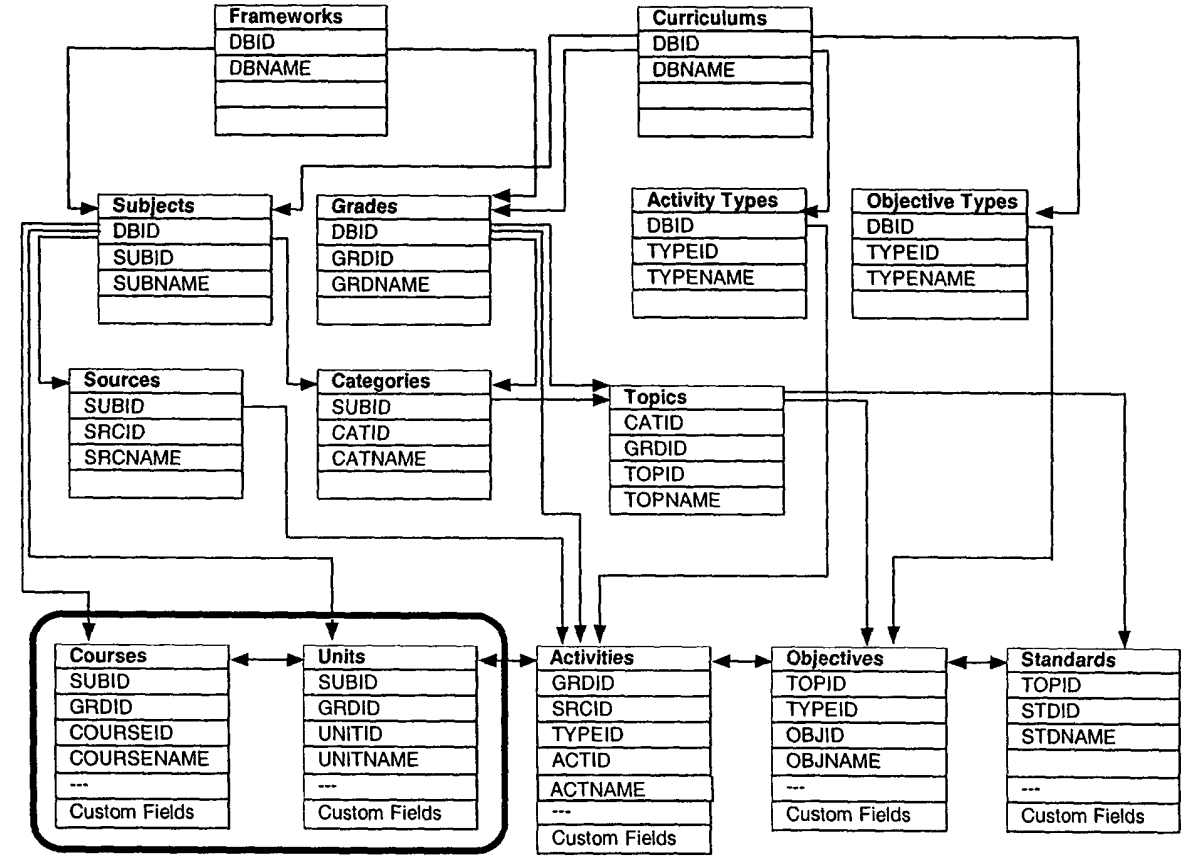
Fig. 10



« ‹ April 2002 › »

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
	1 • Basic Biochemistry Part 2 - Filmstrip	2 • Designer Snacks	3 • DNA Structure and Function	4 • DNA Structure and Function	5 • DNA extraction
7	8 • Introduction to Protein Synthesis	9 • Protein Synthesis Drama	10 • Race for the Double Helix	11 • Student DNA model	12 • Enzymes

Fig. 11


Frameworks
DBID
DBNAME
Curriculums
DBID
DBNAME
Subjects
DBID
SUBID
SUBNAME
Grades
DBID
GRDID
GRDNAME
Activity Types
DBID
TYPEID
TYPENAME
Objective Types
DBID
TYPEID
TYPENAME
Sources
SUBID
SRCID
SRCNAME
Categories
SUBID
CATID
CATNAME
Topics
CATID
GRDID
TOPID
TOPNAME
Courses
SUBID
GRDID
COURSEID
COURSENAME

Custom Fields
Units
SUBID
GRDID
UNITID
UNITNAME

Custom Fields
Activities
GRDID
SRCID
TYPEID
ACTID
ACTNAME

Custom Fields
Objectives
TOPID
TYPEID
OBJID
OBJNAME

Custom Fields
Standards
TOPID
STDID
STDNAME

Custom Fields

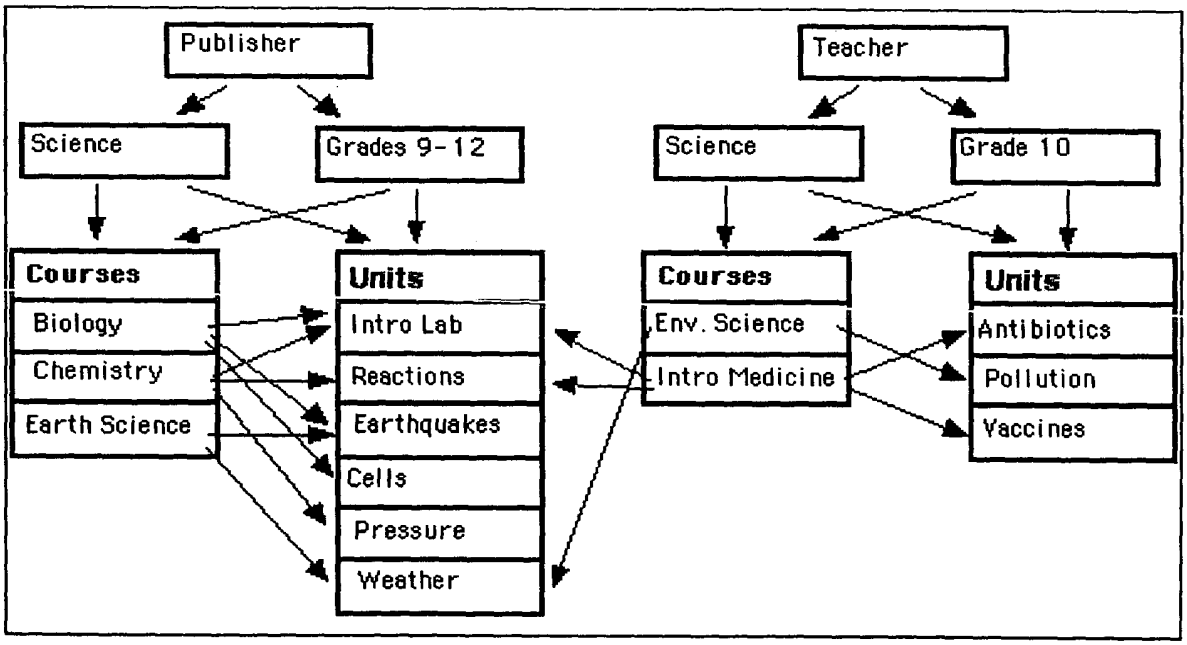

Publisher
Science
Grades 9-12
Courses
Biology
Chemistry
Earth Science
Units
Intro Lab
Reactions
Earthquakes
Cells
Pressure
Weather
Teacher
Science
Grade 10
Courses
Env. Science
Intro Medicine
Units
Antibiotics
Pollution
Vaccines

Fig. 12

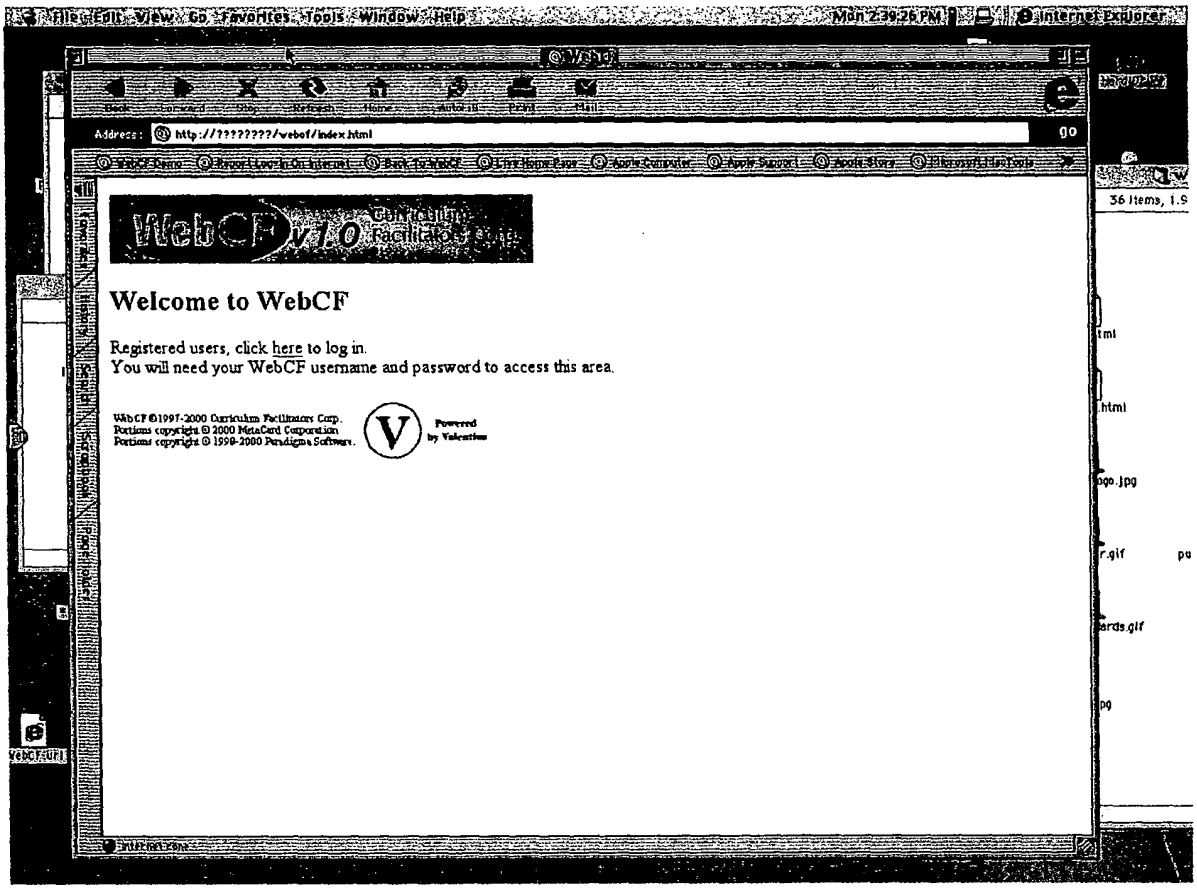

File Edit View Go Favorites Tools Window Help
Mon 2:39:26 PM
Internet Explorer
Address: http://????????/webcf/index.html
go
WebCF v1.0
Welcome to WebCF
Registered users, click here to log in.
You will need your WebCF username and password to access this area.
WebCF ©1997-2000 Curriculum Facilitators Corp.
Portions copyright © 2000 MetaCard Corporation
Portions copyright © 1990-2000 Paradigm Software.
Powered by Valentina

Fig. 13

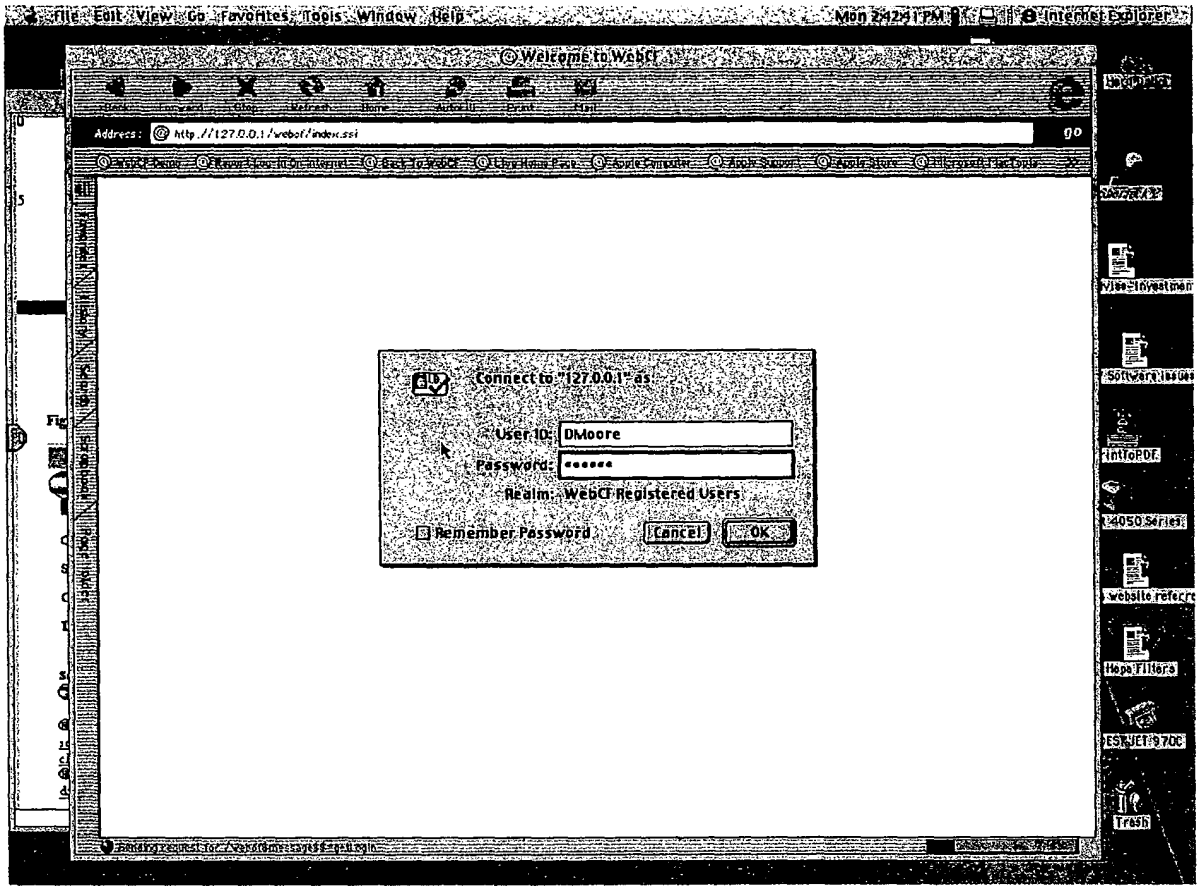

Welcome to WebCT
Address: http://127.0.0.1/webct/index.ssi
go
Connect to "127.0.0.1" as
User ID: DMoore
Password: ••••••
Realm: WebCT Registered Users
Remember Password
Cancel
OK
Trash

Fig. 14

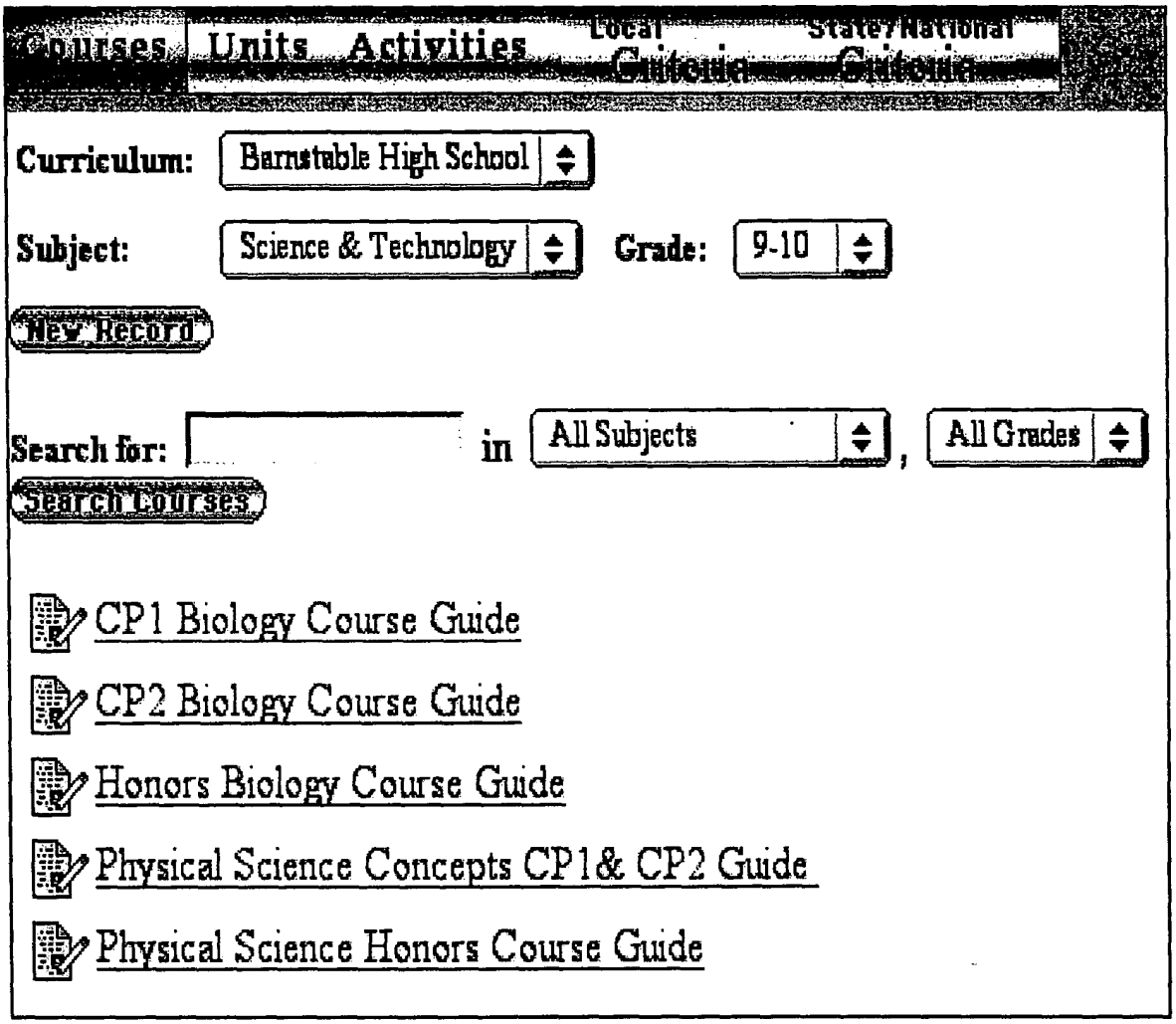

Courses
Units
Activities
Local Criteria
State/National Criteria
Curriculum:
Barnstable High School
Subject:
Science & Technology
Grade:
9-10
New Record
Search for:
in
All Subjects
All Grades
Search Courses
CP1 Biology Course Guide
CP2 Biology Course Guide
Honors Biology Course Guide
Physical Science Concepts CP1& CP2 Guide
Physical Science Honors Course Guide

Fig. 15

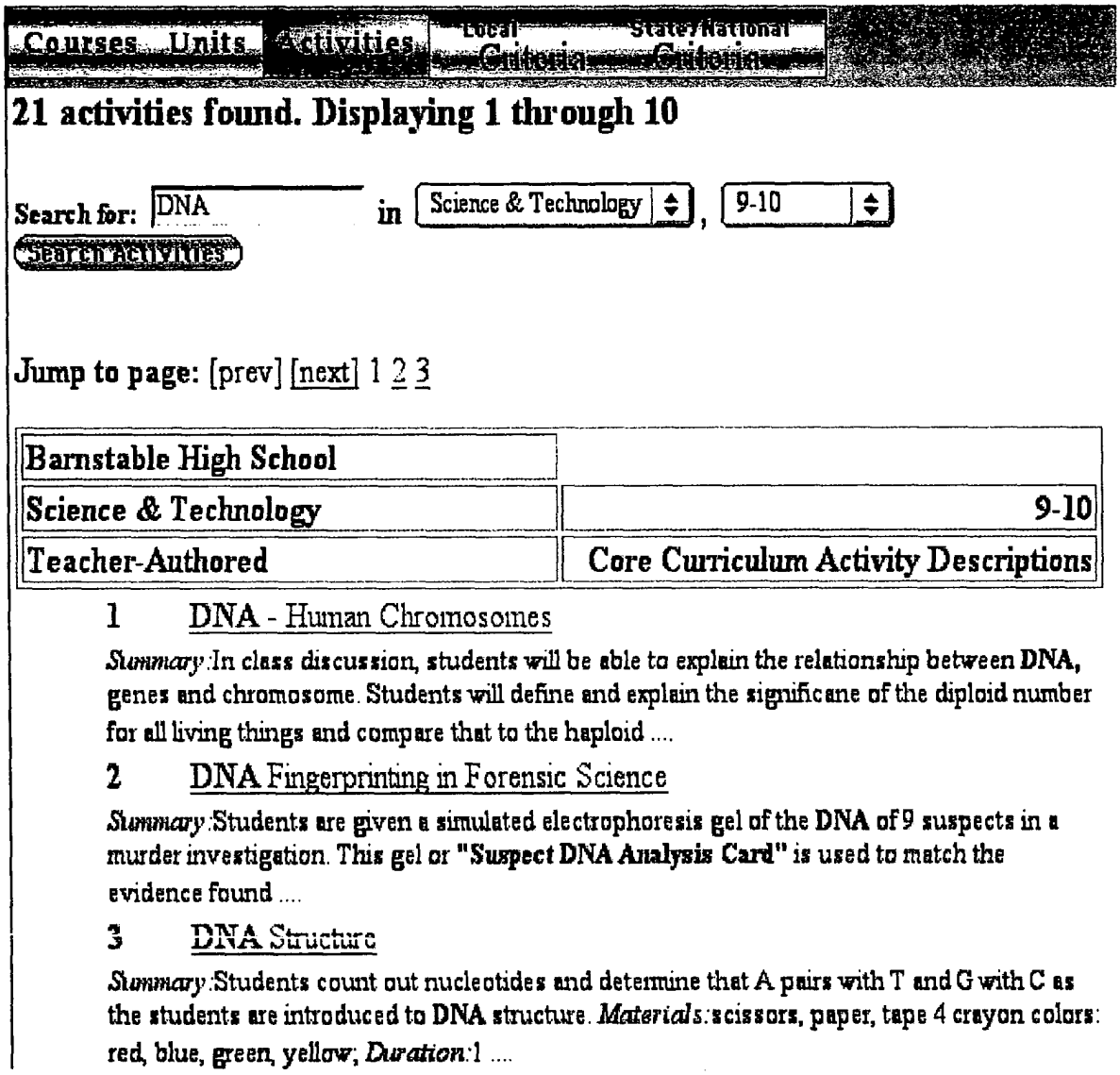
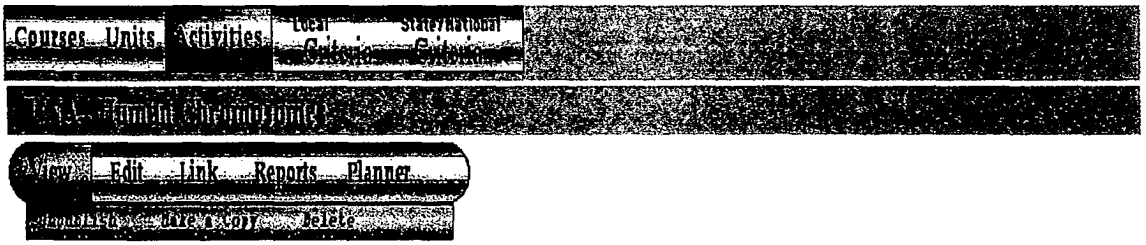

Courses
Units
Activities
Local Criteria
State/National Criteria
21 activities found. Displaying 1 through 10
Search for: DNA in Science & Technology , 9-10
Search Activities
Jump to page: [prev] [next] 1 2 3
Barnstable High School
Science & Technology
9-10
Teacher-Authored
Core Curriculum Activity Descriptions
1 DNA - Human Chromosomes
Summary: In class discussion, students will be able to explain the relationship between DNA, genes and chromosome. Students will define and explain the significane of the diploid number for all living things and compare that to the haploid ....
2 DNA Fingerprinting in Forensic Science
Summary: Students are given a simulated electrophoresis gel of the DNA of 9 suspects in a murder investigation. This gel or "Suspect DNA Analysis Card" is used to match the evidence found ....
3 DNA Structure
Summary: Students count out nucleotides and determine that A pairs with T and G with C as the students are introduced to DNA structure. Materials: scissors, paper, tape 4 crayon colors: red, blue, green, yellow; Duration: 1 ....

Fig. 16



Summary	In class discussion, students will be able to explain the relationship between DNA, genes and chromosome. Students will define and explain the significane of the diploid number for all living things and compare that to the haploid number (using the human 46/23 as an example; Discuss and give examples of chromosomal nondisjunction disorders.
References	Susan Offner, 1992. "American Biology Teacher", "Problem Solving/Critical Thinking: Chromosomal Nondisjunction Disorders"
Materials	Handout of chromosome map, worksheet on nondisjunction disorders, overhead/board, diagrams.
Duration	1 period

Next scheduled date:

Courses/Units containing this activity/resource:

Barnstable High School

Science & Technology **Gr: 9-10**

Honors Biology Course Guide

- **Cell Division**

Objectives for this activity/resource:

Barnstable High School

Science & Technology **Gr: 9-10**

Life Science (Biology) **State Standards**

3. Genetics

- **3.0 Genetics - Broad Concept: Genes are a set of instructions encoded in the DNA sequence of each organism that specify the sequence of amino acids in proteins characteristic of that organism.**
- **3.1 (2 Yr. Science Sequence) Describe the structure and function of DNA, and distinguish among replication, transcription, and translation.***

Fig. 17

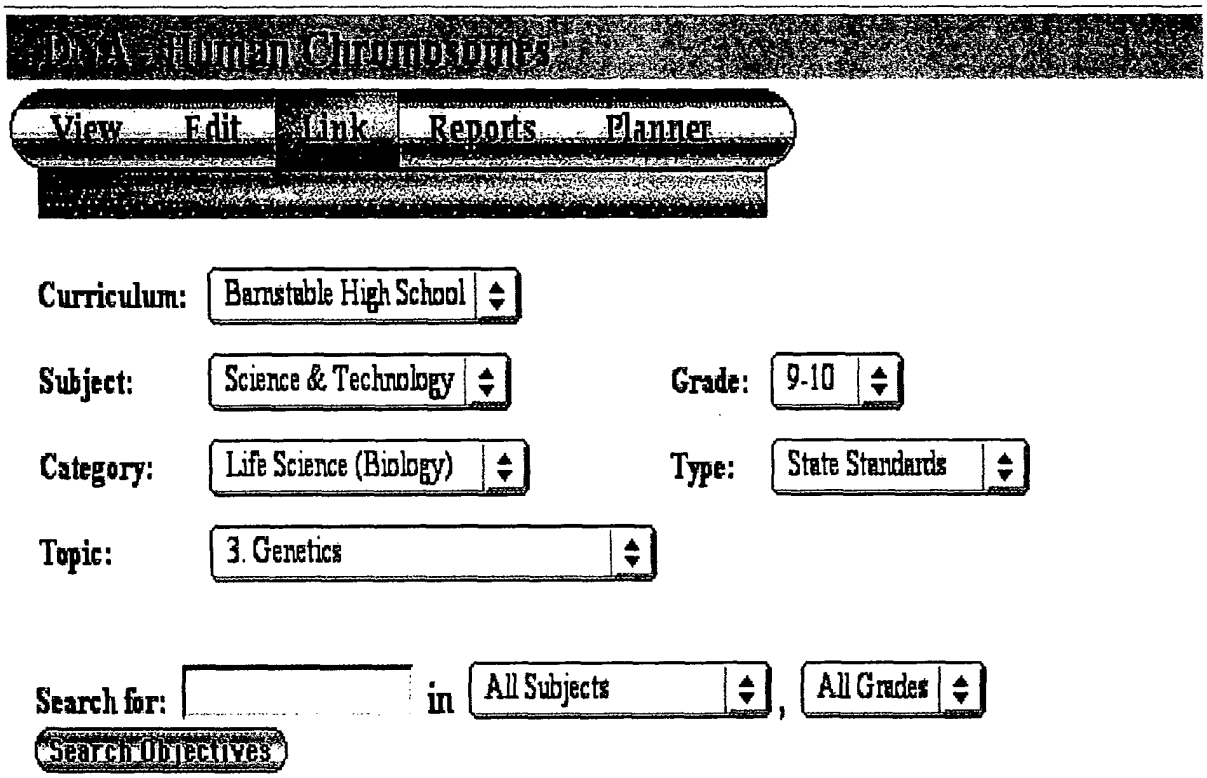

DNA - Human Chromosomes
View
Edit
Link
Reports
Planner
Curriculum:
Barnstable High School
Subject:
Science & Technology
Grade:
9-10
Category:
Life Science (Biology)
Type:
State Standards
Topic:
3. Genetics
Search for:
in
All Subjects
All Grades
Search Objectives
3.0 Genetics - Broad Concept: Genes are a set of instructions encoded in the DNA sequence of each organism that specify the sequence of amino acids in proteins characteristic of that organism.
3.1 (2 Yr. Science Sequence) Describe the structure and function of DNA, and distinguish among replication, transcription, and translation.*
3.2 Describe the processes of replication, transcription, and translation and how they relate to each other in molecular biology.
3.3 Describe the general pathway by which ribosomes synthesize proteins by using tRNAs to translate genetic information encoded in mRNAs.

Fig. 18

New Baseline Curriculum (Source Data)	Existing Baseline Curriculum (Central Data)	State / National Standards (Target Data)
Berkeley South Elementary Science Grades K -2 Inquiry Graphing Skill Objecitves 2.2 Compare data on simple graphs.	Berkeley South Elementary Mathematics Grades K -2 Number Sense & Operations Objectives Master 1.1 Compare sets of objects and describe a quantitative relationship (e.g. less than, more).	California Mathematics Grade 1 Content Standards (K-7) Statistics, Data Analysis, and Probability 1.0 Students organize, represent, and compare data by category on simple graphs and charts: 1.2 Represent and compare data (e.g., largest, smallest, most often, least often) by using pictures, bar graphs, tally charts and picture graphs.

Fig. 19

Framework: Sunshine State Standards Grade Level Expectations

Florida Department of Education 1

Subject: Mathematics

Grade: K-2

Category: Number Sense

Topic: Concepts, and Operations

Level 1. *Standard 1: The student understands the different ways numbers are represented and used in the real world.*

Level 2: Benchmarks by Grade Cluster
Benchmark 1.1: The student associates verbal names, written word names, and standard numerals with the whole numbers less than 1000.

Level 3: Grade- Specific Expectations

1.1.1. In Kindergarten, student counts up to 10 or more objects using verbal names and one-to-one correspondence....

1.1.2 In First Grade, student compares and orders whole numbers to 100 or more using concrete materials, drawings, number lines, and symbols (<, =, >)....

1.1.3 In Second Grade, student represents real-world applications of whole numbers, to 1000 or more, using concrete materials, drawings, and symbols.